An Inaugural Dissertation on the Ergot

By.

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of
Pennsylvania

Passed March 13th 1823

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There is not an article in the materia medica, the efficacy of which has not at one time or another been doubted or wholy rejected by physicians, so fluctuating are the opinions of medical men.- Whether the Ergot is doomed to the same fate, time alone can determine; but if evidence of the utility of an article ever existed, it has been demonstrated by the effects of this, for in no instance have we such a striking example of a specific action, as in the case of the medicine now under consideration, when exhibited in one of the most important operations of the human economy.

"Before physicians were acquainted with the powers of this article on the uterine system, they had not the power of relieving suffering humanity with the same facility they

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now have; the parturient woman was liable to a thousand dangers, from which she is now exempt.

When an atony of the uterus existed, their only recourse was to instruments and other harsh means ~~that~~ that jeopardised the lives of both mother and child; but since the introduction of this article into the practice of midwifery, a tedious labour (where it depends upon a want of action in the uterus,) excites no more alarm than a perfectly natural one, for by a dose of this, it is generally converted into such, and in a short time the sufferings of the patient cease, and the anxiety of her friends and relatives are relieved from a state of suspense in which they would inevitably have been held; or perhaps, had to mourn the loss of both mother and child had not this powerful article been brought into requisition.

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active medicines, should not be put into the hands of the vulgar or an ignorant practitioner; the bad consequences resulting from its being made public or indiscriminately used in lingering labours are so obvious, that I shall deem it unnecessary to mention them.

Candour compells me to acknowledge that I have very little original to offer upon the subject, either as regards its natural history, - medicinal, or poisonous properties, - I shall therefore content myself with collecting the observations of some of the best writers on the subject, and making a few remarks upon others. Doctor Mitchell says that "botanists yet debate whether the Ergot is a diseased grain, or fungus, or a vegetable which occupies the receptacle of a grain which had perished". After exhibiting a bundle of Ergotted rye to his class, he tells them a ludicrous tale of an imaginary animal that

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exists in the article, and deposits his fæces in it, and concludes by saying that "the medicine made of it, is a farrago of corroded Ergot, of entire Ergot, dung, insects and all."

It may be thought presumptuous to oppose such authority as just quoted, but if the Ergot contained an insect, as described so minutely by Doctor Mitchell, it ought to be visible to every beholder. I have examined the article pretty accurately, and have never been able to detect its presence in it, nor have I ever heard or seen his assertions corroborated by others. I shall therefore dismiss his theory of its composition, and adopt the ideas of authors who are less speculative, and are content to consider it entirely a vegetable substance, produced by a vitiated vegetation in the rye.

Other kinds of grain than the rye are said to be liable to the same disease, and

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to possess the same properties, but I have never been able to discover any other kinds of grain affected in a similar manner; and if they ever are so affected, I am inclined to believe they would be essentially different in their properties, because the peculiar principle inherent in the Ergot, (upon which its medicinal and poisonous properties depend) exists in the most healthy rye, but in different proportions, and that the disease operating upon the rye, causes this morbid secretion to go on, which assimilates a greater proportion of this peculiar substance, and form the article now under consideration.

To prove the fact that healthy rye possesses the same properties, but in a less degree, we need only examine its effects upon animals which have been fed entirely upon it for a length of time. So well aware are farmers of the bad consequences resulting from

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feeding their cattle with rye bran, during the later stages of pregnancy, that they would consider the person so doing, as ignorant of his profession as if he knew not the proper seasons for sowing and reaping.

The bran also operates in a very singular manner upon pigs which have been fed with it, producing a scaly eruption upon the skin, with great emaciation of the whole body, and followed by death if the diet is long continued. Now, if other grains were ever affected with the same kind of disease, a very different process would have to ensue in order to produce the same peculiar principle which resides in the spurred rye, for in the case of the rye there is only a disproportionate secretion; - in the case of other grains there would have to be a new principle generated, for in their healthy state they do not contain that principle, which is evident from

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The causes of this disease in the grain, has I believe never been satisfactorily ascertained; some have ascribed its origin to small larvae; some have supposed they had traced it to a species of fermentation; and the Abbe Fontana has asserted it may be propagated by contagion. The experiments of the abbé I have repeated, with a variety of others, for the same purpose, but without success, not being able in a single instance to produce a diseased grain by contagion, nor could I in any instance trace it to either of the other assigned causes.

I am indebted to the politeness of Doctor Chapman for furnishing me with a dissertation on this article, by Job G Asbre, of Pennsylvania, in which is related a set of experiments which go to prove it may be propagated by contagion. He says "I have arrived at this conclusion, from having observed that if a grain

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of ergot be placed on a head of rye at the time it is putting forth its bloom, the husk will be filled with this substance, as well as several of the adjoining husks. I have (says he) tried several experiments of this nature, and uniformly obtained the same results."

The observations I have made confirm what Dr Chapman has stated in his Therapeutics, that the ergot is found most abundant in a low damp soil, on the margin of fields, and in newly cleared grounds.

The appearance of the Ergot is of a dark brown or slate colour externally, and whitish internally, being of various forms and dimensions; some being of the shape and size of a healthy grain of rye, some being much longer, thin and strait, but the greatest number are much larger, of an irregular shape, and bearing some resemblance to the spurs of a cock. It has when dry a brittle fracture, unpleasant

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smell, and is somewhat similar in taste to an acorn.

The virulent properties of the spurred rye, have long been known in France and England, and was assigned as the cause of several local forms of disease which appeared in those countries in the year 1596, and prevailed to a great extent among the poorer class of people, assuming many different forms; some of these put on the symptoms of Epilepsy, and shortly destroyed the patient; others were characterised by desperate and extensive gangrene of the limbs, preceded by vertigo, and violent symptoms of drunkenness.

But the most distressing of the complaints caused by eating bread made of flour which contains this article, is dry gangrene, and which generally proves fatal. The experiments of Doctor Byrd, of Virginia, on animals prove this, and, I believe, I should have obtained the same

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effects by administering the medicine to kittens, but, after using the article for about 18 days, their stools became so extremely offensive, that I was under the necessity of parting with them, to prevent their annoying the family, with whom I lived, though I kept them sufficiently long to see that it had a very striking effect upon them, for the one which ate the most, was on the thirteenth day, attacked with convulsions;- they both became so extremely emaciated (though they had plenty of food constantly before them) that it could not have been possible for them to have survived many days longer; their stools were very copious, of a chocolate colour, and sometimes mixed with blood, and as I have already said extremely offensive.

The dysentery and diarrhoea which prevailed among our troops, while stationed on the frontiers of Canada during the late war, was ascertained to be caused by the daily

use of bread which contained this substance; and it is evident that the affections were imputed to the right cause, for when a supply of flour arrived from Ohio, they entirely disappeared, and did not return so long as this stock of flour lasted; but when this was exhausted, and they again resorted to the flour of the country, the dysentery also appeared again, and continued to rage to an alarming extent so long as bread made of the country flour was used by them.

Medicinal properties.

The oldest account which I have seen of the Ergot being used as a medicine, was written in the year 1774, in which Bruyset says it was used at Lyons, as a remedy in pleurisy, but some doubts existing as to its utility in this disease; a committee was appointed to investigate its properties, and the report of the physician at the head of the committee was, that he believed it to be

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inadequate to the cure of the disease, having tried it upon himself without any advantage whatever.

We als read in the journal de physique, august 1774 that it was used by Madame Dupuille of Chaumon, in Bexen, in the dose of a thimblefull of the powder, given in wine or broth, in the case of tedious labour, with the happiest effect; the child being generally delivered in fifteen minutes after its exhibition, and never succeeded by any bad consequences.

The credit of first introducing the Ergot into regular practice, is due to this country, nor ought its physicians to be reproached with credulity for testing the efficacy of an article which had been so long in the hands of empyrics.

The scepticism prevailing in England, has, I believe, been the cause of its being neglected by the physicians of that country; even Doctor Cullen confesses his ignorance as to the effects of this article, nor does he ever mention its being used as

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Doctor Stearnes, of Saratoga County, State of New York, was the first who gave a correct account of its medicinal properties, and wonderful powers in accelerating lingering labours, and the authenticity of his account has since been confirmed by a large number of physicians, though there are a few who think that the bad effects arising from its use more than counterbalance all the advantages said to be derived from its administration, and there are others who pretend to say, that it has no action whatever on the uterine system.

Unless a person is completely divested of prejudice, when he wants to ascertain a fact by experiment, it is impossible to arrive at any correct conclusion, for an experiment may always be performed in such a manner as to suit the views of the experimentalist; and I have no doubt a series of experiments,

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under these circumstances were conducted by Pierre Chatard, for out of twelve cases of tedious labour related by him where he gave the Ergot, he does not give the article any credit for any good effects which followed its administration, but every bad symptom which followed was imputed to its influence. Even in his first case he wants to insinuate that it had no action on the uterus;- the labour had lasted 24 hours and the child still born, yet he says "by this case will we be authorised to attribute the death of the child to the Ergot."

This inference drawn by Chatard, must convince every person that he did not give the article an impartial trial, and the very circumstance of his coming to so hasty a conclusion, ought to have its due weight, and cause the reader to peruse the remainder of his experiments with a suspicious eye, when I think he will be satisfied that I have not unjustly

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charges Mr Chatard with being prejudiced against the article.— His paper may be found in the New York medical repository for 1819.

There are a few others who have attempted to depreciate the value of the ergot, amongst whom is Dr Hosack, of New York. But the authority of Doctors James, Chapman, and Dewees, and a number of other respectable practitioners, is, I think, sufficient to remove all doubt as to its utility, and sanction its use under such circumstances as I shall mention

In restricted pelvis, when it is ascertained that the woman cannot go her full period without rendering it necessary to destroy the child by the operation of embryulcia, we may resort to the ergot with the most decided advantage in order to induce premature labour. The value of the article in this case cannot be too highly appreciated; we not only save the tender female from the dreadful appre-

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hension she entertains of the operation, and ourselves the painful necessity of performing it, but we frequently have the pleasure to reflect that we have been instrumental in saving the life of the child and restoring it to the bosom of an anxious mother.

In tedious labour where it depends upon an atony of the uterine fibres - the soft parts being relaxed and lubricated with mucus, we may expect great advantage from its use in the dose of 15 or 20 grains in powder or decoction, it generally restores the lost tone of the uterus in 15 or 20 minutes, and enables it to expel its contents in a very short time.

In consequence of the effects of this medicine being so transient, it is necessary to repeat it about every 10 minutes. I have had no experience with the article myself, but my friend Dr Brookfield, and my preceptor Dr Anderson, have each of them frequently used it and are

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In retained placenta, where the action of the uterus has been exhausted by the previous exertions in expelling the child, the ergot is also very serviceable. From the confidence with which Dr James speaks of it in this case I am disposed to believe it a very valuable remedy

The ergot has also been recommended as a remedy in amenorrhoea, but if we adopt the idea that it acts on the uterus only while in a state of distension, we cannot expect much from it in this disease, though my preceptor says he thinks he has seen it used with advantage in the New York State Prison

In dysmenorrhoea the ergot is said to be useful, but this disease like the preceding one, has, I think remedies that are better adapted to its treatment, as the volatile tincture of guaiacum, tincture of cantharides &c.

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upon a debility and relaxation of the uterine fibres, may be frequently cured by the use of our medicine. It acts by exciting a contraction of the uterus, and thereby constringing the mouths of the bleeding vessels, which prevents the further flow of blood.